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| 10/523,368 | 01/03/2006 | Hidekazu Michioka | 052102 | 1184 |
| 38834 7590 08/15/2008 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036 | | | | |
| EXAMINER | | | | |
| WATTS, ALAN B | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/523,368

Applicant(s)

MICHIOKA ET AL.

Examiner

ALAN B. WAITS

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
Paper No(s)/Mail Date 2/7/2005, 8/27/2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 5 recite the limitation "wear-resistant".

4. The term "wear-resistant" in claims 3 and 5 is a relative term which renders the claim indefinite. The term "wear-resistant" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al USP 2757548 in view of Namimatsu et al USP 6216821.

Smith discloses a similar device comprising:

Re clm 1:

- a screw shaft (10, fig 1) having a ball rolling groove (11, fig 1) on an outer periphery thereof
- a plurality of balls (14, fig 1) rollable along said ball rolling groove
- a nut member (12, fig 1) engaged with said screw shaft through said balls
- a seal member (27, 28, and 37, fig 2) provided outside said lubricant supply mechanism
- an oil lip member (17, fig 3) is provided in a vicinity of said application member with a predetermined gap provided between itself and said application member in a direction of said ball rolling groove
- said oil lip member having a distal end placed in sliding contact with a surface of said ball rolling groove to scrape the lubricant off said ball rolling groove (as shown by 17 in fig 3)
- said oil lip member being made of a material that is not impregnable with the lubricant (as shown in fig 3)

Although smith does disclose:

- a mechanism (31, fig 3) provided at each axial end of said nut member
- said mechanism has an application member (31 in the ball groove, fig 3) whose distal end is in sliding contact with said ball rolling groove

Smith does not disclose:

- said mechanism being a lubricant supply mechanism

- said application member being impregnable with lubricant, [so that the lubricant is supplied to said ball rolling groove through said application member]

Namimatsu teaches a similar lubrication device, comprising:

- a lubricant supply mechanism (20, fig 1)
- said application member being impregnable with lubricant (30, fig 4), [so that the lubricant is supplied to said ball rolling groove through said application member]

for the purpose of providing an improved lubrication mechanism that is substantially maintenance free (c 1, ln 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Smith and include:

- a lubricant supply mechanism (31, fig 3) provided at each axial end of said nut member
- said lubricant supply mechanism has an application member whose distal end is in sliding contact with said ball rolling groove
- said application member being impregnable with lubricant, [so that the lubricant is supplied to said ball rolling groove through said application member]

for the purpose of providing an improved lubrication mechanism that is substantially maintenance free.

Re clm 2, Smith further discloses:

- said oil lip member is secured to a mount portion of the application member of said lubricant supply mechanism through a leaf spring (19, fig 3) [so that the distal end of said oil lip member is always kept in sliding contact with the surface of said ball rolling groove by elastic force of said leaf spring]

Re clm 3, Smith further discloses:

- said oil lip member has a sliding contact portion that comes in sliding contact with the surface of said ball rolling groove (17, fig 3)
- said sliding contact portion being integrally provided at a distal end of an oil lip body made of an elastic material (as shown in fig 3)
- said oil lip member being secured to a mount portion of the application member of said lubricant supply mechanism through a support member (19, fig 3) [so that a distal end of said sliding contact portion is always in sliding contact with the surface of said ball rolling groove]

Smith does not disclose:

- said sliding contact portion being made of a wear-resistant resin material

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a resin for the sliding contact portion to achieve the predictable result of being able to mass produce them at low cost.

7. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al USP 2757548 in view of Namimatsu et al USP 6216821.

Smith discloses a similar device comprising:

Re clm 4:

- a screw shaft (10, fig 1) having a ball rolling groove (11, fig 1) on an outer periphery thereof
- a plurality of balls (14, fig 1) rollable along said ball rolling groove
- a nut (12, fig 1) member engaged with said screw shaft through said balls
- a seal member (37, fig 2) provided at each end of said nut member
- said seal member has an oil lip member (36, fig 3) whose distal end is always in sliding contact with a surface of said ball rolling groove [to scrape the lubricant off said ball rolling groove]
- said oil lip member being provided at a predetermined angle α with respect to a radial direction of said screw shaft and at a predetermined lead angle θ with respect to a groove direction of said ball rolling groove (as shown in fig 1)

Smith does not disclose:

- a lubricant supply mechanism that supplies lubricant to a part of the ball rolling groove located in said nut member

Namimatsu teaches:

- a lubricant supply mechanism (20, fig 1) that supplies lubricant to a part of the ball rolling groove located in said nut member

for the purpose of providing an improved ball screw device with a lubrication mechanism that reduces friction and is substantially maintenance free (c 1, ln 35-43).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Smith to replace Smith's material (31, fig 3) with Namimatsu's polymer member containing lubricant (abs) and provide:

- a lubricant supply mechanism that supplies lubricant to a part of the ball rolling groove located in said nut member

for the purpose of providing an improved ball screw device with a lubrication mechanism that reduces friction and is substantially maintenance free.

Re clm 5, Smith further discloses:

- said oil lip member has a sliding contact portion (36, fig 4) that comes in sliding contact with the surface of said ball rolling groove
- said sliding contact portion being integrally provided at a distal end of an oil lip body made of an elastic material (as shown in fig 4)

Smith does not disclose:

- said sliding contact portion being made of a wear-resistant resin material

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a resin for the sliding contact portion to achieve the predictable result of being able to mass produce them at low cost.

Regarding the functional recitation(s) in the claim(s) above denoted by the "[]" the examiner notes while features of an apparatus may be recited either structurally or functionally, claims directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. The reference discloses all the claimed structural limitations and therefore anticipates the claim. See MPEP 2114. Additionally, the apparatus is capable of performing the claimed functions.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Benton et al. USP 4905533, Spontelli USP 2818745, and Sears USP 2793538 each disclose a similar device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN B. WAITS whose telephone number is (571)270-3664. The examiner can normally be reached on Monday through Friday 7:30 am to 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alan B Waits/

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Examiner, Art Unit 3682

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3682